Water supply planning through Regional Collaboration in Chicago’s Far Northwest Suburbs

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Overview

• Introduction
• Water supply planning in NE Illinois
• Background on the Northwest Water Planning Alliance
• NWPA initiatives
  o Education & outreach
  o Water conservation ordinances
  o Upcoming projects
Since 1934, the Metropolitan Planning Council (MPC) has been dedicated to shaping a more sustainable and prosperous greater Chicago region. As an independent, nonprofit, nonpartisan organization, MPC serves communities and residents by developing, promoting and implementing solutions for sound regional growth.
MPC’s Recent Water Policy Work

**Policy research**

- Northwest Water Planning Alliance – regional water supply planning

**Policy advocacy**

- Ill. HB 4496 – Establishes a timeline for updating the Illinois Plumbing Code
- What Our Water’s Worth ([www.chicagolandh2o.org](http://www.chicagolandh2o.org))

**Policy implementation**

- Milwaukee Avenue Green Development Corridor ([www.logansquareh2o.org](http://www.logansquareh2o.org))
- Lake Zurich Integrated Water Resources Strategy
- Blue Island, Blue Water Rain Barrel & Garden Initiative
WATER SUPPLY PLANNING IN NORTHEASTERN ILLINOIS
Develop a Regional Water Supply Management Plan for the 11 county planning area through the year 2050
Water 2050

2005 – 8.75 million
2050 – 12.11 million

~ 38% growth

Kendall – 253%
McHenry – 94%
Kane – 92%
DeKalb – 63%
Lake – 38%

1,264,502 more people!
Scenario water withdrawals: 2005 - 2050,
in million gallons per day

- Current trend scenario
- Less resource intensive scenario
- More resource intensive scenario

YEAR
2005 2010 2015 2020 2025 2030 2035 2040 2045 2050

Source: B. Dziegielewski and F.J. Chowdhury, 2008, Southern Illinois University Carbondale
Key plan findings and recommendations

• Additional study needed on the supply side
  o Shallow aquifer
  o Additional modeling of the deep aquifer
  o Effects of stream withdrawals

• Elements of the water supply are limited

• Conservation is needed now!

• Need for cooperative planning
NORTHWEST WATER PLANNING ALLIANCE
NWPA Communities by Water Source

Northwest Water Planning Alliance Communities

- NWPA Counties
- Non-NWPA Municipalities

NWPA Municipalities by Water Source

- Deep Aquifer
- Deep Aquifer and River
- Deep and Shallow Aquifer
- Lake
- Shallow Aquifer

Sources:
Municipalities, water sources, and Northwest Water Planning Alliance from Metropolitan Planning Council; counties from Illinois State Geological Survey

Map prepared by Abby Crisostomo
26 April 2012

Projection: Illinois State Plane Coordinate System East NAD83 Feet
Background

- Population
- Demand
- Withdrawals
- Groundwater Quantity
- Groundwater Quality
Background

NWPA is tasked to use a cooperative planning approach to sustainably provide groundwater and inland surface water supplies.
NWPA INITIATIVES
Initiatives: Education & outreach

- WaterSense
- Lawn care manual
- Bill inserts
- Newsletter content

Outdoor Water Conservation Manual for NWPA Communities
Community Approaches to Sustainable Outdoor Water Use 2012
Shared conservation ordinances

- NWPA TAC
- NWPA Executive Committee
- Councils of Government
- NWPA Member Communities
- Property Owners
Ordinance Development Process

Regional
Inclusive
Broad participation
Use what works
Big impact
Leadership
Responsive
Conservation-oriented
Best practices
Cooperative
Iterative
Local expertise
Easy to understand
Ownership
Ordinance Development Process

Ordinance review
- Existing ordinances in member communities

Implementation Survey
- Implementation
- Monitoring and enforcement
- Impact measurement

Ordinance assessment
- Strengths and weaknesses
- Best practices in the region
- Scenarios
- Survey
Ordinance Review: Existing Types

NWPA Communities by Lawn Watering Restriction Ordinance Type

Lawn Watering Restriction Type
- Status
- Time
- Even/Odd (Time)
- Even/Odd (Day)
- Even/Odd (Day-Specific)
- Day
- Emergency
- None
- Unknown
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example</th>
<th>Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Uses colors or levels to change restrictions as needed.</td>
<td>Green: Ban from 9am-6pm, Yellow: Evens go on even days, odds go on odd days, follow time restriction, Red: Prohibited</td>
<td>Algonquin, Barrington, Crystal Lake, East Dundee, Elgin, Fox River Grove, Gilberts, Huntley, Lake Barrington, Lakemoor, Pingree Grove, West Dundee</td>
</tr>
<tr>
<td>Time</td>
<td>Restricts watering by time only.</td>
<td>Ban from 10am-5pm</td>
<td>Deer Park, Grayslake, Lake Zurich, North Aurora</td>
</tr>
<tr>
<td>Even/Odd (Time)</td>
<td>Restricts watering by both time and even addresses go on even days, odds go on odd days.</td>
<td>Ban from 9am-6pm, evens on even days, odds on odd days</td>
<td>Antioch, Aurora, Batavia, Burlington, Elburn, Fox Lake, Geneva, Green Oaks, Hampshire, Lake Villa, Lindenhurst, Montgomery, Oswego, Prospect Heights, St. Charles, Sugar Grove, Woodstock, Yorkville</td>
</tr>
<tr>
<td>Even/Odd (Day)</td>
<td>Restricts watering by day according to even or odd address.</td>
<td>Evens go on even days, odds go on odd days</td>
<td>Bartlett, Johnsburg, Lake in the Hills, Sleepy Hollow, Spring Grove, Wauconda, West Chicago</td>
</tr>
<tr>
<td>Even/Odd (Day-Specific)</td>
<td>Restricts watering according to even or odd address, but by specific day of the week.</td>
<td>Evens go on Wednesday, Friday &amp; Sunday, odds go on Tuesday, Thursday &amp; Saturday</td>
<td>Lakewood</td>
</tr>
<tr>
<td>Day</td>
<td>Restricts water by day only.</td>
<td>No watering on Mondays. Follows Even/Odd (Day-Specific ) during emergencies</td>
<td>South Elgin</td>
</tr>
<tr>
<td>Emergency</td>
<td>No regular restriction, but Mayor, Village Board or other entity in power has authority to declare a water emergency and restrict lawn watering as needed.</td>
<td>Mayor can make an emergency proclamation and ban all outdoor water use</td>
<td>Carpentersville, Harvard, Island Lake, Marengo, McHenry, South Barrington</td>
</tr>
<tr>
<td>None</td>
<td>No restrictions.</td>
<td>None</td>
<td>Bull Valley, Cary, Greenwood, Kaneville, Lily Lake, Millbrook, Richmond, Trout Valley, Union</td>
</tr>
<tr>
<td>Unknown</td>
<td>Ordinance not yet found.</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
Ordinance Survey: Structure

• General
• Implementation
  • Reasoning behind new ordinances
  • Basis for ordinance specifics
• Monitoring and Enforcement
  • Affects whom?
  • Violations
  • Barriers
• Impact Measurement
  • Metrics
  • Determining success
  • Barriers
• Other Water Resource Management Efforts
Ordinance Survey: Results

- Lawn Watering: Significant
- New Sod Restrictions: Moderate
- Residential Indoor Plumbing: Minor
- Commercial/Industrial Indoor: Low
- Native Planting: Minimal
- Rainwater Harvesting: Negligible
- Waste Water Restrictions: Negligible
- Conservation Pricing: Negligible
- Designated Sensitive: Negligible
- Designated Wellhead: Negligible

(Bar chart showing the extent of 'Yes' and 'No' responses for various ordinance survey results.)
# Ordinance Assessment: Criteria

<table>
<thead>
<tr>
<th>Ease of implementation</th>
<th>Ease of enforcement</th>
<th>Collaboration</th>
<th>Impacts and Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Simplicity of recommended actions</td>
<td>• Monitoring</td>
<td>• Necessity</td>
<td>• Water use</td>
</tr>
<tr>
<td>• Gains versus effort</td>
<td>• Staffing</td>
<td>• Ease</td>
<td>• Unintended consequences</td>
</tr>
<tr>
<td>• Simplicity of implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Ordinance Assessment: Scenarios

<table>
<thead>
<tr>
<th>Option</th>
<th>Permitted Hours/Day</th>
<th>Permitted Days/Week</th>
<th>Total Permitted Hours/Week per Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time restriction (ban 9a-6p &amp; 9p-6a)</td>
<td>6</td>
<td>7</td>
<td><strong>42</strong></td>
</tr>
<tr>
<td>Even/odd (ban 10a-6p)</td>
<td>16</td>
<td>3 or 4</td>
<td><strong>48 or 64</strong></td>
</tr>
<tr>
<td>Even/odd (no time restriction)</td>
<td>24</td>
<td>3 or 4</td>
<td><strong>72 or 96</strong></td>
</tr>
<tr>
<td>Time restriction (ban 10a-6p)</td>
<td>16</td>
<td>7</td>
<td><strong>112</strong></td>
</tr>
<tr>
<td>No restrictions</td>
<td>24</td>
<td>7</td>
<td><strong>168</strong></td>
</tr>
</tbody>
</table>
Ordinance Assessment: Survey

What should be the main priorities for a shared ordinance? (choose top three)

- Simple to understand
- Ease of monitoring/enforcement
- Ease of implementation
- Flexibility to change with changing conditions
- Maximize summer water savings
- Maximize year-round water savings
- Applicable to both counties and municipalities
- Other (please specify)
Recommended Ordinance

Year–Round Conservation Ordinance: Even/odd, sprinklers allowed 6am-9am and 6pm-9pm.

- 18 or 24 hours available
- Non-potable water and handheld watering devices can be used any day or time
- Could be the “Green” in a color-coded system
Recommended Ordinance

Drought Provisions

• **Drought Provision**: Sprinkler systems prohibited. Outdoor use of water is allowed only for using non-potable water or handheld watering devices.
  • Could be the “Yellow” in a color-coded system

• **Extreme Drought Provision**: Total ban on outdoor watering.
  • Could be the “Red” in a color-coded system
**Additional Provisions**

- **Waste of water prohibited**
- **Flexibility for more conservation-oriented ordinance provisions**
- Can impose a **total outdoor watering ban** for water conservation, service interruption, or emergency purposes at any time
- **Specific penalties** can be set by individual communities.
NWPA’s Role

• Recommend switch from Year-Round/Green to Drought/Yellow or Severe Drought/Red Provisions (based on drought conditions)
• Provide assistance with implementation
• Advise on enforcement
• Assist with monitoring results from ordinance updates
• Recommend future adjustments with new technology and research
• Provide education/outreach materials

• Continue work on additional regional ordinance updates and water conservation efforts (i.e., water loss accounting)
NWPA’s Role: Education

For Communities:
• Explanation for why a regional lawn watering ordinance matters
• Help with how to implement and enforce
• Written materials
• Web materials

For Property Owners:
• Lawn to Lake water conservation manual (how to properly water lawns)
• Information on smart irrigation systems
• Resources on effluent recycling, greywater reuse and rainwater harvesting
• Indoor water conservation and efficiency information
Upcoming initiatives

Water conservation
- Non-revenue water reporting & reduction
- Drought management plan
- Other shared conservation ordinances

Studies and planning
- Compiling and sharing information throughout NWPA area
- Sustaining water quality
Contact Us:

Metropolitan Planning Council
www.metroplanning.org
www.chicagolandh2o.org

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